REMARKS/ARGUMENTS

The Examiner is thanked for her review of the pending application.

Claims 1-17 and 19-36 remain in this application. Claims 1, 2, 3, 5, 6, 8, 27, 28, 35 and 36 have been amended to address the Examiner's Sections 101, 103 and 112 rejections. No new matter has been added.

In the Office Action dated February 1, 2008, the Examiner has rejected Claims 1-4, 9-10, 15, 19-20, and 25-27 under 35 U.S.C. 101 because it does not recite subject matter within one of the statutory classes. Regarding this rejection the Examiner has stated that "Claim 1 recites a series of engines (i.e. econometric engine, financial model engine, and promotional engine). Engines are portions of programs, and thus the body of claim 1 is construed as software per se. Claims 2-4, 9-10, 15 and 19-20 depend from claim 1 and therefore have the same deficiencies. Computer programs and software are merely a set of instructions <u>capable</u> of being executed by a computer. Without specific language stating that a computer or computer processor is actively executing the computer program/software, computer programs and software are not considered to be statutory processes or machines. Therefore, there must be some functional act performed by a computer or computer element on the software/computer program to impart statutory subject matter. Therefore, it is respectfully submitted that claims 1-4, 9-10, 15, 19-20 and 25-27 are directed towards non-statutory subject matter."

Base Claim 1 has been amended and now recites a "<u>computerized</u> price optimization <u>system</u> ... comprising ... <u>engine including computer-readable</u> code" (emphasis added). Support for a computerized price optimization system with various engines can be found on figure 1 and page 10, lines 7-19. Similarly, support for the implementation using a general purpose computer system can be found on figure 7A-7B and pages 117-119.

It is well-known to one skilled in the sciences, including the mechanical, electrical and computer arts that computerized systems include computational machines that can be implemented using specific software executing on a general purpose computer, or implemented using specialized hardware such as a special purpose computation machine. For example, a modern "engine" in the automobile sciences includes mechanical components and a computerized control system which includes hardware and software.

In other words, Applicant's claimed invention, a computerized optimization engine, as amended can be implemented using different combinations of hardware, software and/or firmware. Accordingly, the recited claim language of Claim 1 is intended to read on different implementations with varying proportions of hardware and software, as long as all the recited functional limitations of the various "engines" are practiced.

Accordingly, Applicants believe that Claims 1-4, 9-10, 15, and 19-20 are now all in compliance with 35 U.S.C. 101.

The Examiner has also rejected Claims 1-4, 9-10, 15, 19-20, 25-27, and 35-36 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding this rejection, the Examiner has stated that "Claim 1 recites in the preamble a system, while the body of the claim recites a series of engines. It is unclear how a collection of engines, which are portions of computer programs, would amount to a system, since systems require a combination of hardware and software elements. Therefore, it appears that the body of the claim does not match the limitations set forth in the preamble. Clarification is required." The Examiner has stated that "Claims 2-4, 9-10, 15, 19-20, and 25-27 depend from claim 1 and therefore have the same deficiencies."

As discussed above, Claim 1 has been amended to recite a "computerized price optimization system ... comprising ... engine including computer-readable code" (emphasis added).

Claim 2 has been amended and now recite "computer-readable code configured to temporarily reduce prices" in response to Examiner's specific 112 rejection.

Claim 27 has also been amended and now recites "the econometric engine utilizes Bayesian Shrinkage modeling which relies on a mixed-model methodology of combining data to dampen any extreme values of the data" in response to Examiner's specific 112 rejection. Support can be found in Specification as filed, at least in the paragraph beginning at the bottom of page 61 and ending at the top of page 62.

Claims 35 and 36 have been amended and now recite "integer programming model with the following objective function" in response to Examiner's specific 112 rejection.

Hence, Applicants believe that Claims 1-4, 9-10, 15, 19-20, 25-27, and 35-36 are now all in compliance with 35 U.S.C. 112.

The Examiner has also rejected Claims 28-34 under 35 U.S.C. 103(a) as being unpatentable over Boyd et al. (US 7,072,848) in view of Dvorak (U.S. 7,155,402) in further view of LoPresti ("New SPSS Missing Value Analysis Option").

Claim 28 has been amended and now recites "modeling sales as a function of price to create a sales model, wherein the sales model includes imputing base price variable and promotional variable, and generating an equivalent price and an equivalized unit using an equivalizing factor" (emphasis added). Support can be found in at least page 19, lines 1-20, and pages 35-37 of Applicants' Specification as filed which states in part:

> "Using this data, relative price may be calculated. As disclosed earlier, an equivalizing factor is defined. For this example, let the equivalizing factor be 16. Using the equivalizing factor, an equivalent price can be calculated (Step 1301).

$$\text{Equivalent Price} = \text{Actual Price} \bullet \left(\frac{Equivalizing factor}{size}\right)$$

Thus for   A: Equivalent Price $= \$1.00 \left(\dfrac{16}{8}\right) = \$2.00$

B: $\$2.00 \left(\dfrac{16}{16}\right) = \$2.00$

C: $\$3.00 \left(\dfrac{16}{32}\right) = \$1.50$

the results of these calculations are shown in the "Equivalent Price" column of the table

above.

Next equivalent units sold ("units") can be calculated (Step1303).

$$\text{Equivalent Units} = \text{units} \bullet \left(\frac{size}{equivalizing factor}\right)$$

Thus for   A: Equivalent units $= 500 \left(\dfrac{8}{16}\right) = 250$

B: $300 \times \left(\dfrac{16}{16}\right) = 300$

C: $100 \times \left(\dfrac{32}{16}\right) = 200$

In a similar vein, equivalent base price and equivalent base units are calculated (Step 1305) using the imputed values for base price (for example, as determined in Steps 1201-1207) and for base units (also referred to as base volume which is determined as disclosed below)."

Since none of the cited references teach the generation of **equivalent price** and **equivalized unit** using an **equivalizing factor**, Examiner's grounds of rejection of base Claim 28 and dependent Claims 29-34 are now moot, and Claims 28-36 are all allowable.

The Examiner then rejected independent Claim 1 citing the same rationale as Claims 28, 29. The Examiner also rejected Claims 2-27 including independent Claims 5 and 8.

Amended Claims 1, 5 and 8 now recite "generating an equivalent price and an equivalized unit using an equivalizing factor". Since none of the cited references teach the generation of **equivalent price** and **equivalized unit** using an **equivalizing factor**, Examiner's grounds of rejection of base Claims 1, 5, 8 are now moot, and Claims 1, 5, 8 and their respective dependent Claims 2-4, 6, 7, 9-27 are all allowable for at least the same reasons.

The Examiner has requested additional information under 37 CFR 1.105 that she has determined is reasonably necessary for examination. The Examiner states "Claims 35 and 36 in the instant applicant present specific objective functions for integer programming models. Examiner requests information, specifically regarding these models and their objective functions, in order to determine if the equations are specifically the applicant's own work.

First, the Examiner requested "that the Applicant please provide a list of keywords that are particularly helpful in locating publications related to the disclosed art of integer programming and objective functions specifically in the art of promotions planning and calendaring."

Useful keywords for searching include "integer programming", "demand models", "consumer demand models", "marketshare models", "promotion merchandising", "promotion optimization", "promotion pricing models", "marketing research", and "market response models".

The Examiner also requested "the title, citation and copy of each publication that any of the applicants relied upon to develop the disclosed subject matter that describes the applicant's invention, particularly as to developing of the integer programming models objective function. For each publication, please provide a concise explanation of the reliance placed on that publication in the development of the disclosed subject matter."

Applicants submit pages 451-453 (5 pages including two cover pages) from "*Introduction to Linear Optimization*" by Dimitris Bertsimas and John N. Tsitsiklis, 1997.

With respect to the Bertsimas reference, Applicants have provided the following comments:

> "Integer Programming is one of the branches of mathematical programming. These problems seek to maximize an objective function (defined over decision variables and other parameters) subject to constraints on the decision parameters. Additionally, some (or all) of the decision variables can take only integer-values (as opposed to continuous values).

> In general the problem is represented as:

$$\text{Maximize } c^T x$$
$$\text{Subject to } Ax \leq b$$

> Where c is a vector, x is the decision variable vector (each x_{i} taking integer values), A is a matrix of constraints and b specifies the levels of the constraints. You can refer to the attachment for details. The above case is one of linear integer program, as the constraints are linear. If the constraints are instead non-linear, then the problem becomes non-linear integer program."

The Examiner then asked for "copies of any publication which any of the applicants authored or co-authored and which describe the disclosed subject matter of integer programming and objective functions, specifically for promotions planning and calendaring."

Applicants have not authored nor co-authored any publications in the area of "integer programming and objective functions, specifically for promotions planning and calendaring".

Finally, the Examiner requested "names of any products or services that have incorporated the claimed subject matter.

Applicants believe that the claimed subject matter has been implemented in the assignee's "Demandtec Promotion" service offered to its customers.

In sum, base Claims 1, 5, 8, 28 are believed to be allowable. Dependent Claims 2-4, 6, 7, 9-17, 19-27 and 29-36 which depend therefrom are also believed to be allowable as being dependent from their respective patentable parent Claims 1, 5, 8 for at least the same reasons. Hence, Examiner's rejection of dependent Claims 2-4, 6, 7, 9-17 and 19-27 are rendered moot in view of the allowability of independent Claims 1, 5, 8.

Applicants believe that all pending Claims 1-17 and 19-36 are now allowable over the cited art and are also in allowable form and respectfully request a Notice of Allowance for this application from the Examiner. The commissioner has been authorized via EFS (credit card) to charge the amount of $1,050.00 to cover the three (3)-months extension of time fee. The commissioner is authorized to charge any additional fees that may be due to our Deposit Account No. 50-2766 (Order No. DEMIP006). Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at telephone number 925-570-8198.

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